Unit ***25***

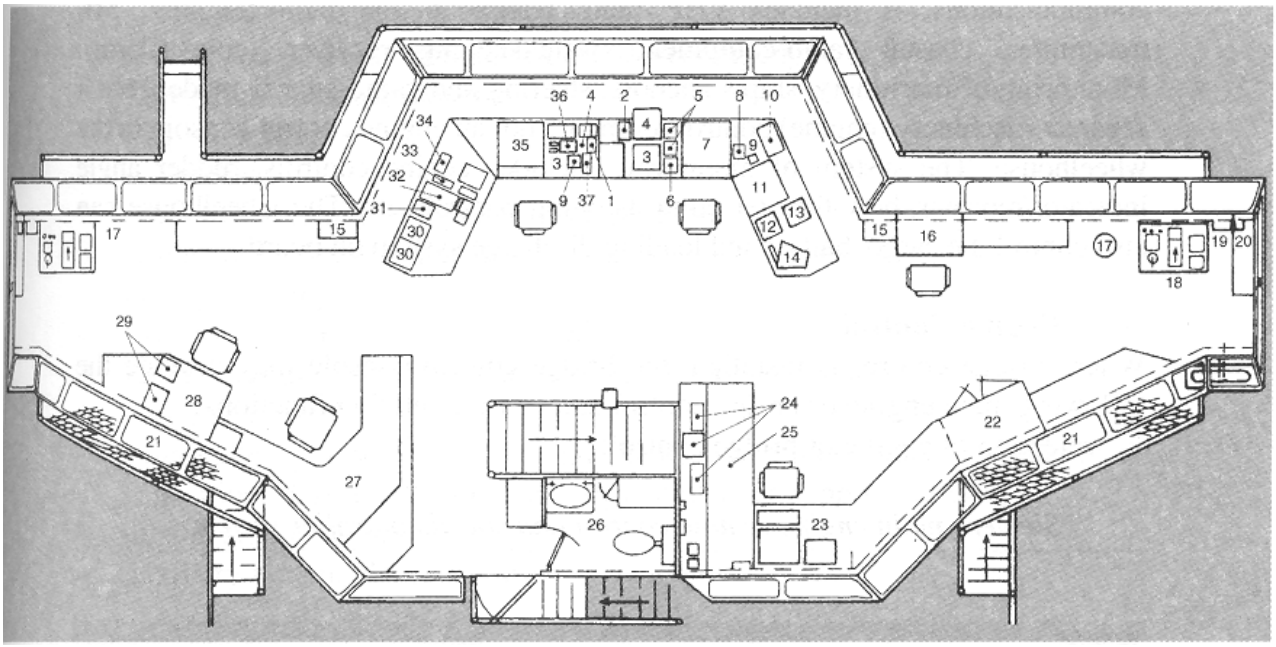
THE NAVIGATING BRIDGE

Basic terms

• wheelhouse • navigating bridge • steering wheel
• rudder control • magnetic compass • compass repeater
• gyroscopic compass • chart table • chartroom • radar scanner
• layout • bridge wings • navigating equipment
• communication equipment • main bridge console • plotting aids
• ARPA • radar • wing control • relative/true motion radar
• position fixing aids • satcom • satnav • navtex receiver
• RD finder • LORAN-C • Decca Navigator • facsimile receiver
• auto pilot • depth sounder • speed log • sonar
• VHF radio telephone • MF transmitter • watch-keeping receiver
• monitoring • engine control console

The wheelhouse forms part of the ship' s navigating bridge. It normally runs athwartships and is situated art. From the bridge the ship is nonna1ly navigated, and from there all activities on deck can be seen and controlled by the Captain or Officer of the Watch.

Today the bridge of a modem ship is tota1ly enclosed by glass screens or windows to give protection from weather. In addition to the steering wheel or steering controls, the ship's main magnetic compass and a repeater from the gyroscopic compass are normally situated on the bridge. It also houses a chart table, radar scanners and a rich array of modem navigating and communication equipment. The type and layout of the wheelhouse and the bridge, as well as bridge wings, varies according to ship types and to the changes in modem technology in shipbuilding and navigation. Here is a layout of a modem wheelhouse.



1 *Autopilot*
2 *VHF Radio*
3 ME/CPP Controller
4 *ME Monitor*
5 Bow Thrusters
6 Talk-back System
7 *Radar with Arpa*
8 *Auto Phone Network*
9 Windspeed Direction
10 *Doppler Log*
11 Voyage Management
12 Navigation Lights
13 Signal Lights
14 CCTV Monitor
15 Radar Transceiver
16 Desk
17 *Gyro Repeater*
18 Wing Control Position
19 Talk-back System
20 *VHF Radio*
21 *Emergency Exit Window*
22 *Master Gyro*
23 *Nav Workstation/PC*
24 *Position Displays*
25 *Chart Table*
26 *Toilet Washroom*
27 *Main Radio Station*
28 *Engineer's Desk*
29 *Alarm Monitor and Control Centre*
30 *Lighting Switchboard*
31 *Group Alarm Display*
32 *Fire Detection Panel*
33 *Duty Indicators*
34 *Watch Receiver*
35 *Radar*
36 *Deadman Alarm Panel*
37 *Emergency Telegraph*

The wheelhouse equipment of a modem ship normally encompasses the main bridge console with the plotting aids (ARPA, i.e. Automatic Radar Plotting Aid), path finder radars (3 cm x-band radar and 10 cm s-band relative motion radar). A number of position fixing and communicational aids may be fitted within the main console, or separately such as satcom and satellite back-up radio-station, navtex receiver, RD finder, satnav with gyro and log interfaces, Loran-C receiver, Decca navigator, etc. The equipment also includes weather facsimile receivers, autopilot, gyro compass with repeaters, depth sounders, speed logs, sonar, etc. Radio-equipment is used for safety and commercial messages, and for ship-to-shore

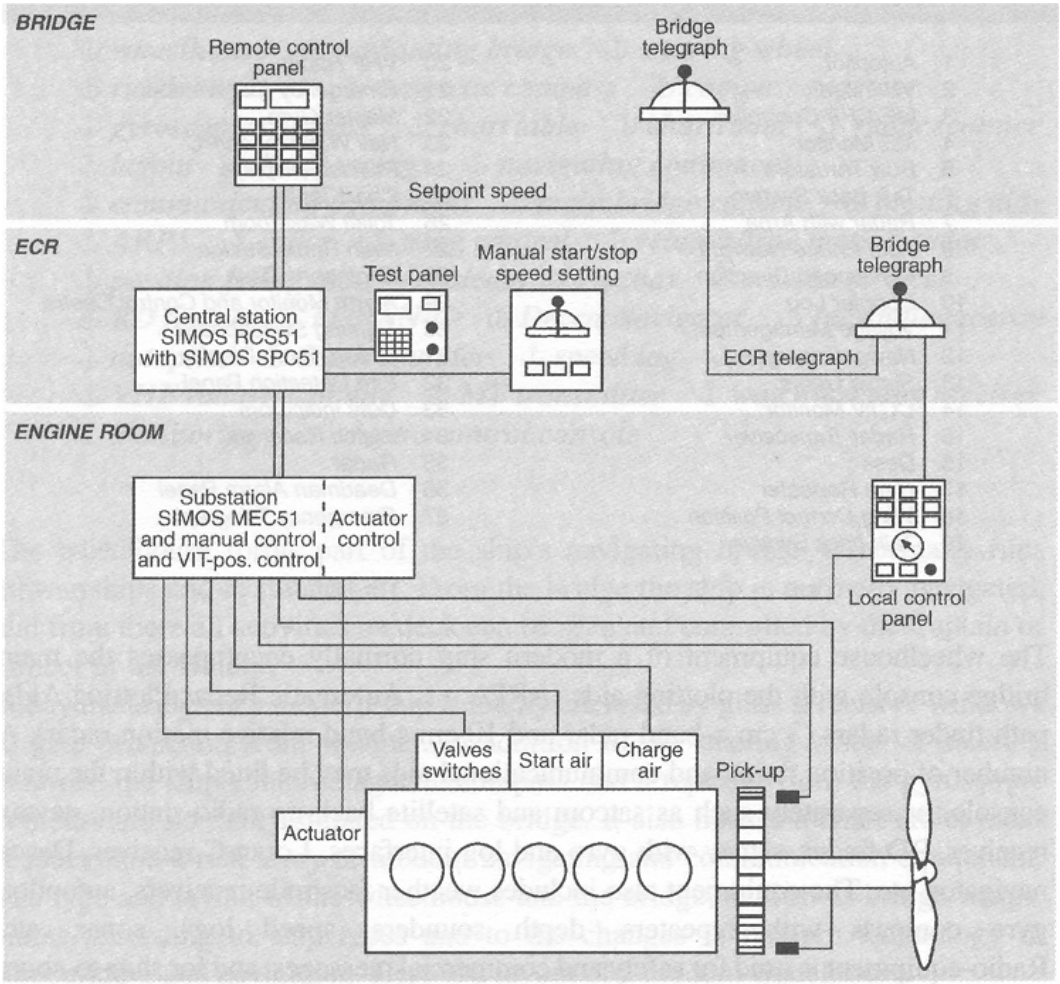
communications. It includes VHF radio telephone and radiotelegraph, MF transmitter, coastal radio-equipment, watchkeeping receiver (auto alarm). Monitoring of machinery, ship's anchors, steering and cargo gear is made from a separate machinery (engine) control room or from an engine control console in the wheelhouse. The system of monitoring includes engine controls, rudder angle indicator/repeater, how thruster controls, wing controls etc. The wheelhouse can also control the cargo, ballast and loading/discharge system on board.

Engine Control

Where bridge control is installed, the bridge control console may provide the following main engine or bridge control and instrumentation functions:

- selection of engine or bridge control;

Siemens main engine remote control and speed controller system



- single-lever or telegraph control of:
    - direction of engine rotation (direct -reversing engine),
    - programmed start sequence,
    - speed setting,
    - clutches,
    - controllable-pitch propeller blade position;
-engine order telegraph/printer;
- emergency stop;
- override of automatic or slowdown;
- continuous display of key parameters, which may include:
    - engine rpm,
    - propeller rpm (where clutches are fitted), controllable-pitch propeller blade position, starting air supply pressure, clutch air supply pressure;
- engine alarm condition;
- auxiliary system alarm condition.

A. Comprehension & vocabulary

A.1 *Write the different terms about the equipment mentioned in the reading text under the appropriate headings:*

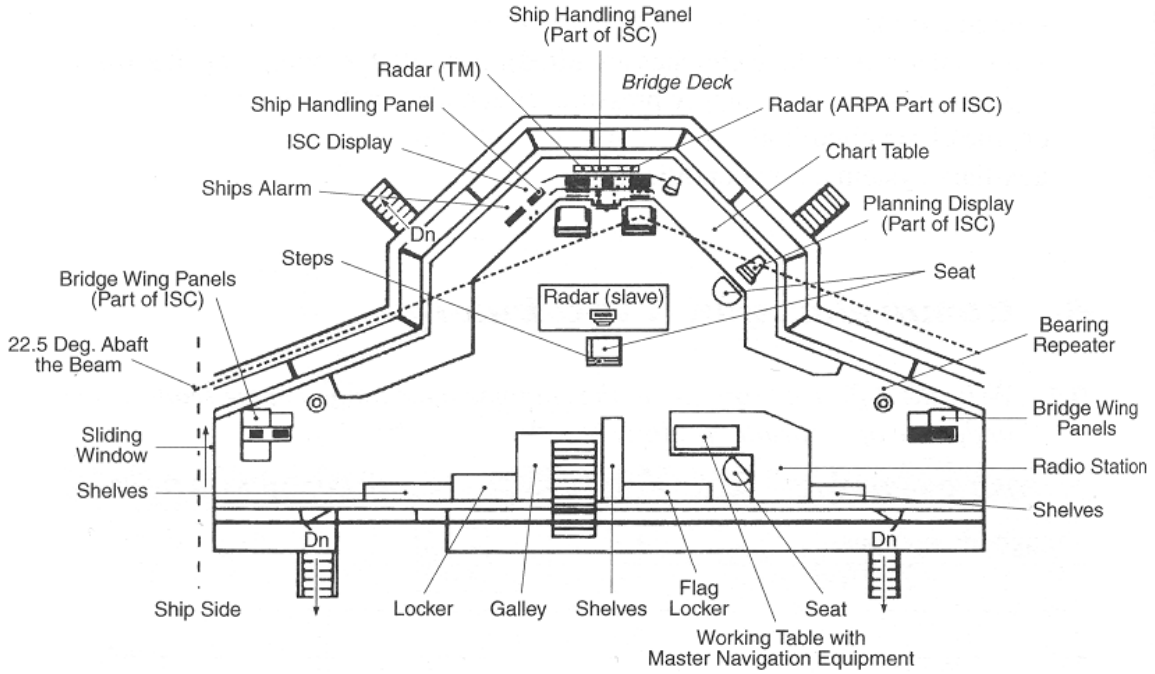
POSITION-FIXING	*SAFETY*	*COMMUNICATIONS*
magnetic compass		

A.2 *Give full terms for the following acronyms or abbreviations:*

RADAR _____
ARPA _____
SATCOM _____
SATNAV _____
NAVTEX _____
RDF _____
LORAN _____
SONAR _____
VHF _____

MF _____
CPU _____
ADF _____
GPS _____
NNSS _____
VDU _____
INMARSAT _____

A.3 *How does the wheelhouse below differ from a conventional one?*



A.4 *Say which terms are defined below:*

1. _____ a navigational instrument by which a bearing of a radio beacon can be obtained and plotted on a chart.
2. _____ a part of a remote-indicating compass system which repeats the indications of the master compass at a distance.
3. _____ a device holding the ship's course as desired by the master or watch officer.
4. _____ an instrument used to determine water depth by measuring, the time interval for sound waves to go from a source of sound near the surface to the bottom and back again.
5. _____ a device used in the communications between the bridge and shore.

6. _____ a radio determination system which measures distance and direction by a comparison of reference signals with the radio signals reflected from the target whose position is to be determined.

B. Grammar

B.1 *Underline all the sentences containing an active verb. Then rum them info passive sentences, if possible, making the necessary changes:*
EXAMPLE
It also houses a chart table, radar scanners _____ .
A chart table, radar scanners _____ are housed in it *(i.e. "in the wheelhouse").*

B.2 *State which of the sentences in the text contain a Passive Infinitive:*
EXAMPLE
...from there all activities *can he seen* and *control1ed* by the Captain... .

B.3 *Form adjectives from the following nouns and add the noun which this adjective qualifies in the text:*
EXAMPLE
Navigation - navigating bridge

1. Magnet - _____
2. Gyroscope - _____
3. Communication - _____
4. Commerce - _____

C. Translation

C.1 *Translate the following sentences info English:*

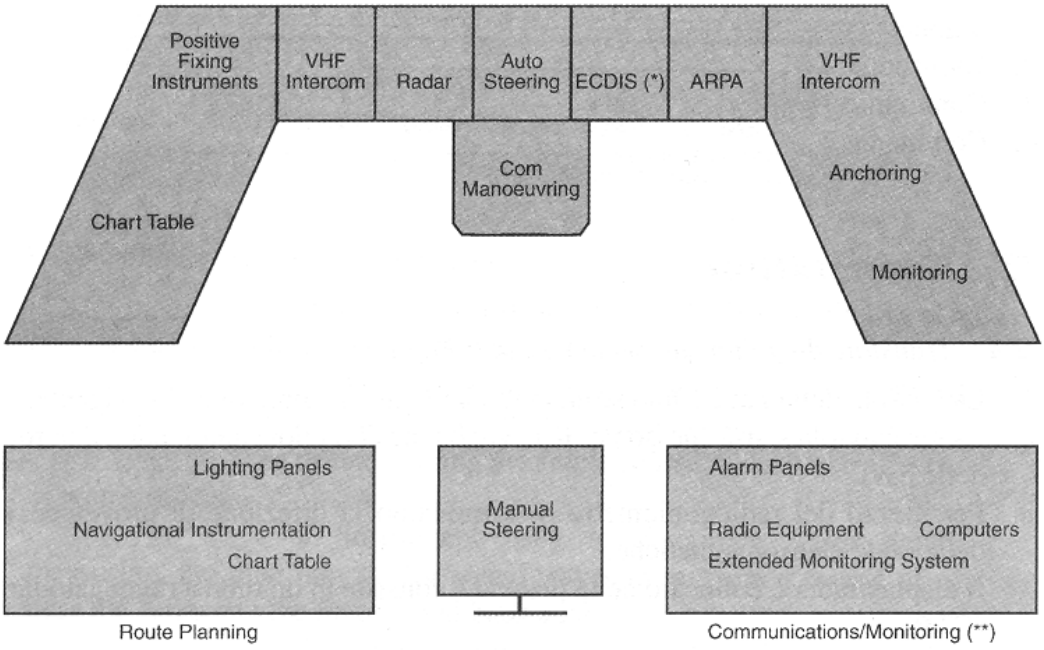
1. La bussola della nave è uno strumento che indica la direzione al navigante.
2. La girobussola si usa spesso per la navigazione con pilota automatico a bordo delle flavio
3. Per mezzo del radiogoniometro determiniarno la direzione di provenienza delle onde elettromagnetiche.
4. Il display radar è collocato nella plancia e consiste in un tubo a raggi catodici (CTR).
5. Il sestante e il cronometro sono i più antichi strumenti nautici, ma si trovano ancora a bordo di ogni nave.

6. Dalla plancia si ha una chiara visione del ponte. La console principale ospita un'unità ARPA e un radar marino.
7. Oltre al tavolo di carteggio, ci sono l'ecoscandaglio elettroacustico, il radiofax e il navigatore satellitare.

D. Writing skills

D.1 *Answer the fol1owing questions about the reading text:*

1. What are the functions of the wheelhouse?
2. How is the bridge protected from weather?
3. Where is the bridge situated?
4. What are the main integrated parts of the bridge?
5. What are the plotting aids?
6. Which of the equipment in the text is used both for navigation and communications?
7. How are the machinery and ship's systems monitored and controlled?



* *Location for Electronic Chart Display System (ECDIS) if installed.*
** *Workstation for Additional Bridge Functions.*